

39. Scitovsky, A. A., and Rice, D. P.: Estimates of the direct and indirect costs of acquired immunodeficiency syndrome in the United States, 1985, 1986, and 1991. *Public Health Rep* 102: 5-17 (1987).
40. Abel, E. L., and Sokol, R. J.: Incidence of fetal alcohol syndrome and economic impact of FAS-related anomalies. *Drug Alcohol Depend* 19: 41-70 (1987).
41. National Institute on Drug Abuse: National household survey on drug abuse: main findings, 1985. DHHS Publication No. (ADM) 88-156. Rockville, MD, 1988.
42. Hilton, M. E.: Drinking patterns and drinking problems in 1984: results from a general population survey. *Alcohol Clin Exp Res* 11: 167-175 (1981).
43. Rice, D. P.: Estimating the cost of illness. *Health Economics Series, No. 6*. DHEW Publication No. (PHS) 947-6. U.S. Department of Health, Education, and Welfare, Rockville, MD, 1966.
44. Rice, D. P., Hodgson, T. A., and Kopstein, A. N.: The economic costs of illness, a replication and update. *Health Care Financing Rev* 7: 61-80, 1985.
45. Berry, R., Boland, J., Smart, C., and Kanak, J.: The economic cost of alcohol abuse, 1975. Policy Analysis, Inc., Brookline, MA, 1977.
46. A. D. Little, Inc.: Social cost of drug abuse. National Institute on Drug Abuse, 1974.
47. Rufener, B. L., Rachal, J. V., and Cruze, A. M.: Management effectiveness measures for NIDA drug abuse treatment programs. Volume II: costs to society of drug abuse. DHEW Publication No. (ADM) 77-424. National Institute on Drug Abuse, Rockville, MD, 1977.
48. Fein, R.: Economics of mental illness. Basic Books, New York, NY, 1958.
49. Conley, R., and Conwell, M.: The cost of mental illness, 1968. Statistical Note No. 30. National Institute of Mental Health, Survey Reports Section, Rockville, MD 1970.
50. Levine, D., and Levine, D.: The cost of mental illness, 1971. DHEW Publication No. (ADM) 76-265. National Institute of Mental Health, Rockville, MD, 1975.
51. Cooper, B. S., and Rice, D. P.: The economic cost of illness revisited. *Soc Sec Bull* 39: 21-36 (1976).
52. Levine, D., and Willner, S.: Cost of mental illness, 1974. Statistical Note No. 125. National Institute of Mental Health, Rockville, MD, 1976.
53. Paringer, L., and Berk, A.: Cost of illness and disease, fiscal year 1975. Report No. B1. Georgetown University, Public Services Laboratory, Washington, DC, 1977.

A National Survey of State Maternal and Newborn Drug Testing and Reporting Policies

TERRY A. ADIRIM, MD, MPH
 NANDINI SEN GUPTA, MD, MPH

When this study was initiated, the authors were students at the Harvard School of Public Health, Boston, MA. Dr. Adirim is a Resident in Pediatrics at The Children's Hospital of Philadelphia, PA. Dr. Nandini Sen Gupta is currently working for the Altering Cesarean Trends (ACT) study in the Department of Obstetrics and Gynecology at the Brigham and Women's Hospital, Boston, MA.

Tearsheet requests to Nandini Sen Gupta, MD, 777 Mount Auburn St., Apt. 4, Watertown, MA 02172.

Synopsis

The prevalence rate of drug use by pregnant women in the United States has been shown to range from 7.5 percent to 11 percent. Drug exposure in utero has been associated with deleterious effects on the fetus and newborn. Public health officials are currently confronted with difficult policy decisions with regard to testing and reporting of pregnant and post-partum women and the provision of appropriate services. The widespread

lack of consistent policy on the State level has led to bias in testing and reporting procedures and to the inappropriate use of the legal system as a deterrent to drug use during pregnancy.

A survey of the 50 States and the District of Columbia found that no State currently has enacted legislation regarding testing. Thirteen States have mandatory reporting policies for drug-exposed newborns. Eleven of these States require reporting to social service agencies, at least 3 States routinely report to criminal justice agencies, and 10 require that reports be filed as child abuse or neglect. Many States without mandatory reporting statutes indicate that reports are made to social service agencies at the discretion of the health care provider. During fiscal year 1990, only 22 States specifically allocated funds for programs that address perinatal substance use.

In States with mandatory reporting policies, reports should be made only to social service agencies in conjunction with the provision of appropriate preventive, medical, and social services to the woman and her infant. Interagency coordination is necessary to standardize testing and reporting practices within States and to effectively allocate resources.

AN INFORMAL SURVEY conducted in 1988 by the National Association of Perinatal Addiction and Research Education (NAPARE) showed that 11 percent of pregnant women used illicit substances—most commonly cocaine but usually more than one substance (1). In the only statewide population-based study of drug use during pregnancy, the Rhode Island Department of Health found a 7.5 percent prevalence rate of drug use by pregnant women. The authors have acknowledged that since the mothers included in the study underwent a single test conducted shortly before or after delivery, which reveals drug use only within the 48 hours preceding testing, the actual prevalence of drug use occurring throughout pregnancy may have been higher (2). Based upon the 7.5 percent and 11 percent incidence rates found in these studies, the annual number of drug-exposed infants born annually in the United States may be estimated to be between 294,000 and 430,000 (3). These estimates reflect the potentially grave impact of perinatal drug use in this country.

The physical and psychosocial manifestations of drug exposure in utero have been shown to range from subtle to severe (4-13). Health care professionals, researchers, and policy makers are searching for ways to address the consequences of the widespread use of drugs by women of childbearing age, and the large number of children who consequently are being exposed to the risks of such use. In this survey, we examined State level policies regarding drug use during pregnancy. The exchange of information among the States is one way to broaden awareness among policy makers regarding effective responses to the problems created by perinatal substance use. Such awareness may encourage development of more and better programs addressing the needs of families affected by substance use.

Methods

We mailed questionnaires to the directors of the Divisions of Family Services or Maternal and Child Health in the departments of public health of all 50 States and the District of Columbia. We asked whether each State had formal, stated policies regarding testing and reporting of drug use by pregnant or post-partum women. We asked each respondent where reports are sent—to social service agencies, to child protection services, or to criminal justice agencies, or to all three. We also asked whether State funds were allocated in fiscal year

1990 toward programs that specifically address perinatal substance issues. Forty-five States responded by mail. Appropriate officials of States who did not respond to the mailed questionnaire were interviewed by telephone. We obtained results from all 51 recipients of the questionnaires during the period of March 1990 to August 1990.

Results

Drug testing policies. No State has statewide protocols or regulations for testing pregnant women and newborns for illicit substances, though officials in some States mentioned that hospital protocols exist. Many States specifically indicated that testing is done at the discretion of the health care provider.

Reporting policies. Thirteen respondents (25.5 percent) have mandatory reporting policies for pregnant women or infants who test positive for illicit substances—Florida, Georgia, Illinois, Kansas, Massachusetts, Minnesota, New York, Oklahoma, Rhode Island, Utah, Washington, Wisconsin, and the District of Columbia (see table). Eleven respondents (21.6 percent) require reporting to social service agencies and two (3.9 percent) report to criminal justice agencies. Ten respondents (19.6 percent) require that such reports be categorized as child abuse or neglect.

Of the States that do not have mandatory reporting policies, five indicate that should a health care provider choose to report a positive test, that report is filed with a social service agency as child abuse or neglect. In the District of Columbia, positive drug test results are reported to the U.S. Criminal Justice Administration. In South Carolina, such reports may be sent to local law enforcement agencies at the discretion of health care providers. At least two States, Minnesota and Kansas, routinely note positive drug test results on infants' birth certificates.

Allocation of public monies. Twenty-two respondents (43.1 percent) indicate that State funds were allocated for fiscal year 1990 toward education, testing, or treatment of pregnant and post-partum addicts and drug-exposed newborns (see table). Twenty-four States (47 percent), representing approximately 1,600,000 births in 1988, the last year birth data are available (3), indicate that no money was specifically allocated for this high-risk group but that their needs were addressed under broader programs, such as prenatal care under Medicaid. Four State maternal and child health agencies re-

Drug test reporting policies of the 50 States and the District of Columbia and whether State funds are allocated toward perinatal substance abuse programs

State	Mandatory reporting	Mandatory reporting to:			State funds allocated for FY 1990
		Social service agencies	Child protection services	Criminal justice agencies	
Alabama	No	No	No	No	Yes
Alaska	No	No	No	No	Yes
Arizona	No	No	No	No	No
Arkansas	No	No	No	No	No
California	No	No	No	No	Yes
Colorado	No	No	No	No	No
Connecticut	No	No	No	No	Yes
Delaware	No	No	No	No	Yes
DC, Washington	Yes	Yes	No	Yes	Yes
Florida	Yes	Yes	Yes	No	Yes
Georgia	Yes	Yes	Yes	Yes	No
Hawaii	No	No	No	No	Yes
Idaho	No	No	No	No	Yes
Illinois	Yes	Yes	Yes	No	Yes
Indiana	No	No	No	No	?
Iowa	No	No	No	No	?
Kansas	Yes	No	No	No	Yes
Kentucky	No	No	No	No	Yes
Louisiana	No	No	No	No	?
Maine	No	No	No	No	?
Maryland	No	No	No	No	Yes
Massachusetts	Yes	Yes	Yes	No	Yes
Michigan	No	No	No	No	Yes
Minnesota	Yes	Yes	Yes	No	Yes
Mississippi	No	No	No	No	No
Missouri	No	No	No	No	No
Montana	No	No	No	No	No
Nebraska	No	No	No	No	No
Nevada	No	No	No	No	No
New Hampshire	No	No	No	No	No
New Jersey	No	No	No	No	No
New Mexico	No	No	No	No	Yes
New York	Yes	Yes	No	No	No
North Carolina	No	No	No	No	No
North Dakota	No	No	No	No	No
Ohio	No	No	No	No	No
Oklahoma	Yes	Yes	Yes	No	Yes
Oregon	No	No	No	No	No
Pennsylvania	No	No	No	No	Yes
Rhode Island	Yes	Yes	Yes	No	Yes
South Carolina	No	No	No	(¹)	No
South Dakota	No	No	No	No	No
Tennessee	No	No	No	No	No
Texas	No	No	No	No	No
Utah	Yes	Yes	Yes	No	Yes
Vermont	No	No	No	No	No
Virginia	No	No	No	No	No
Washington	Yes	No	Yes	No	?
West Virginia	No	No	No	No	No
Wisconsin	Yes	Yes	Yes	No	Yes
Wyoming	No	No	No	No	No

¹ The Department of Public Health of South Carolina responded that reporting to local law enforcement agencies does take place but is not mandated by law.

sponded that they did not have funds specifically earmarked for such purposes and that they did not know if other departments received funds for this purpose. Many respondents indicated that existing programs and funding for the treatment of substance-abusing women and their substance-exposed newborns were dispersed among numerous State agencies.

Discussion

Public health officials are faced with a variety of difficult issues in determining the appropriate policies that address maternal substance abuse. These include

- whether it should be mandatory to report drug-using pregnant and post-partum women to State agencies,
- what types of services should be provided to the women and their children, and
- whether criminal sanctions should be imposed against the substance-using mother.

The most significant finding in our survey of State policies is that guidelines for testing and reporting drug use in pregnancy vary from State to State and even within States. We found that no State has a formal policy regarding drug testing of pregnant and post-partum women and their infants. In fact, some States' agencies indicate that they have an unwritten policy against mandatory or universal testing of women and their children. Therefore, in all States testing is done at the discretion of the health care provider. Some States did indicate that a few medical centers within their State have formal testing protocols for testing women or newborns for illicit substances. There is growing concern in the research and legal communities that certain segments of the population are being overtested while other groups are being undertested. Although it may appear that drug use has reached an alarming level only among minorities and the urban poor populations, the authors of at least one study show that the prevalence of drug use does not vary significantly among pregnant women by race or socioeconomic status, but that physicians tend to overtest poor women and women of color and to undertest other groups (1,14). Universal testing of pregnant women or newborns, or both, as a means of overcoming this bias is unrealistic. Each urine drug test costs between \$15 and \$25, and the confirmatory test costs between \$100 and \$200, which could mean an

expenditure of at least \$100 million annually for testing nationwide. The cost alone is an impediment to widespread testing programs.

Thirty-seven States (72.5 percent) do not mandate reporting of all pregnant women and newborns with positive results from any drug tests that may be conducted. In these States, the onus of making the decision to report a patient with a positive drug test lies with health care providers. Under these circumstances, it is difficult to ensure that the decision to report a woman is not biased. In fact, many practitioners do not routinely inquire about drug use among their patients and may be unaware of the subtle manifestations of drug abuse. Therefore, States should consider offering education programs for health care providers that emphasize techniques for detecting drug use by taking a history and performing a physical examination. When practitioners take sole responsibility for deciding when to test or report a woman suspected of drug use, those practitioners may find themselves in an adversarial position vis-a-vis their patients, and this position perhaps will dissuade women from seeking medical care.

States should set coherent and consistent guidelines for health care practitioners regarding drug testing. If reporting of post-partum women and newborns with positive drug tests is mandatory, these reports should be sent only to social service agencies, which would be in a position to provide assistance to the mother and child. They should not be sent to those State agencies that would serve only to discourage women from seeking help, such as criminal justice agencies.

Eleven of the 13 respondents with mandatory reporting policies send the information to State social service agencies. In 10 of these States, a positive drug test is considered statutory evidence of child abuse or neglect. Ideally, reporting of drug use or exposures should lead to health care and social support services that promote the integrity of the family. In the absence of such services, mandatory reporting fails to serve a lasting purpose. Under the present laws, most States can take an infant born to an addicted mother into protective custody. However, there is often no concomitant effort to help the mother obtain treatment for her addiction. States should commit more resources toward increasing women's access to drug treatment programs and to augmenting the range of services offered by these programs. These resources should focus on programs aimed at low-income women; they do not have the financial means to conquer their addiction. Moreover, these women

need programs that address the underlying causes of their addiction: poverty, lack of education, and lack of employment opportunities.

During the period when a woman is undergoing treatment or in the event that the family refuses to cooperate with the treatment plan, the State should make every effort to place temporarily the infant with a responsible family member. Another option, the placement of the infant under foster care, is also available; however, the foster care system is overburdened in most large cities so that often only those infants that are in clear and imminent danger can be placed within this system. Three of our respondents indicate that they routinely report drug-using mothers to criminal justice agencies; however, it is unclear what becomes of the child whose mother faces criminal sanctions. Such sanctions tend to deflect attention away from more constructive solutions.

The formulation of policy and the allocation of public monies toward the problem of maternal drug use can be streamlined by the creation of an interagency council or task force in each State. This council could consist of representatives from the various State agencies involved in providing substance abuse services, as well as representatives from the health care and legal professions. It would have a broad range of responsibilities, such as the creation of formal statewide policies and the development of new treatment and social service programs that are geared specifically toward substance-abusing women.

Additional functions would include the coordination of services among various State agencies and the recommendation of the most effective means of allocating resources. This could be facilitated by anonymous testing of women during the perinatal period to determine where resources should be concentrated. Ideally, the council would be a powerful force in lobbying for progressive legislation and adequate resource allocation for the detection and treatment of pregnant and post-partum addicts and their infants. Some States, such as Arkansas, Florida, Kansas, and Hawaii, have begun to follow this path, having established similar councils or special offices.

In summary we recommend

- the creation of uniform State guidelines for testing and reporting of infants exposed to drugs in utero,

- that State agencies and medical societies offer special training programs that teach health care providers to recognize substance abuse in their patients,
- that reporting of maternal drug use result in treatment services for women and their children and not lead to criminal sanctions, and
- the creation of a State policy-making body with representatives from the various State agencies involved with provision of substance abuse services.

References

1. Chasnoff, I. J.: Drug use and women: establishing a standard of care. *Ann NY Acad Sci* 562: 208-210 (1989).
2. Hollinshead, W. H., et al.: Statewide prevalence of illicit drug use by pregnant women—Rhode Island. *MMWR* 39: 225-227, Apr. 13, 1990.
3. Public Health Service: Vital statistics of the United States: vol. I, natality, 1988. DHHS Publication No. 90-1100. U.S. Government Printing Office, Washington, DC, 1990.
4. Chouteau M., Namerow, P. B., and Leppert, P.: The effect of cocaine abuse on birth weight and gestational age. *Obstet Gynecol* 72: 351-354 (1988).
5. Woods, J. R., Jr., Plessinger, M. A., and Clark, K. E.: Effect of cocaine on uterine blood flow and fetal oxygenation. *JAMA* 257: 957-961, Feb. 20, 1987.
6. Zuckerman, B., et al.: Effects of maternal marijuana and cocaine use on fetal growth. *N Eng J Med* 320: 762-768, Mar. 23, 1989.
7. Hutchings, D. E.: Prenatal opioid exposure and the problem of causal inference. National Institute for Drug Abuse Research Monograph Series 59: 6-19 (1985).
8. MacGregor, S. N., et al.: Cocaine use during pregnancy: adverse perinatal outcome. *Am J Obstet Gynecol* 157: 686-690 (1987).
9. Cherukuri, R., et al.: A cohort study of alkaloidal cocaine ("crack") in pregnancy. *Obstet Gynecol* 72: 147-151 (1988).
10. Ryan, L., Ehrlich, S., and Finnegan, L.: Cocaine abuse in pregnancy: effects on the fetus and newborn. *Neurotoxicol Teratol* 9: 295-299 (1987).
11. Chavez, G. F., Mulinare, J., and Cordero, J. F.: Maternal cocaine use during early pregnancy as a risk factor for congenital urogenital anomalies. *JAMA* 262: 795-798, Aug. 11, 1989.
12. Chasnoff, I. J., Burns, K. A., Burns, W. J., and Schnoll, S. H.: Prenatal drug exposure: effects on neonatal and infant growth and development. *Neurobehav Toxicol Teratol* 8: 357-362 (1986).
13. Hadeed, A. J., and Siegel, S. R.: Maternal cocaine use during pregnancy: effect on the newborn infant. *Pediatrics* 84: 205-210 (1989).
14. Chasnoff, I. J., Landress, H. J., and Barrett, M. E.: The prevalence of illicit-drug or alcohol use during pregnancy and discrepancies in mandatory reporting in Pinellas County, Florida. *N Eng J Med* 322: 1202-1206, Apr. 26, 1990.